RAW SEQUENCE LISTING   DATE: 12/26/2000
PATENT APPLICATION: US/09/700,293   TIME: 13:14:21

    Input Set : A:\seqlist.txt
    Output Set: N:\CRF3\12262000\I700293.raw

ENTERED

```
    4 <110> APPLICANT: SmithKline Beecham Biologicals
    5        Ruelle, Jean-Louis
    7 <120> TITLE OF INVENTION: BASB029 Polynucleotides and Polypeptides
    8        from Neisseria Meningitidis
   11 <130> FILE REFERENCE: BM45321
C--> 13 <140> CURRENT APPLICATION NUMBER: US/09/700,293
C--> 13 <141> CURRENT FILING DATE: 2000-11-13
   13 <150> PRIOR APPLICATION NUMBER: PCT/EP99/03255
   14 <151> PRIOR FILING DATE: 1999-05-07
   16 <150> PRIOR APPLICATION NUMBER: GB 9810276.7
   17 <151> PRIOR FILING DATE: 1998-05-13
   19 <160> NUMBER OF SEQ ID NOS: 6
   21 <170> SOFTWARE: FastSEQ for Windows Version 4.0
   23 <210> SEQ ID NO: 1
   24 <211> LENGTH: 1785
   25 <212> TYPE: DNA
   26 <213> ORGANISM: Bacteria
   28 <400> SEQUENCE: 1
   29 atgaacaaaa tataccgcat catttggaat agtgccctca atgcctgggt cgccgtatcc      60
   30 gagctcacac gcaaccacac caaacgcgcc tccgcaaccg tggcgaccgc cgtattggcg     120
   31 acactgttgt ttgcaacggt tcaggcgagt actaccgatg acgacgattt atatttagaa     180
   32 cccgtacaac gcactgctgt cgtgttgagc ttccgttccg ataaagaagg cacgggagaa     240
   33 aaagaagtta cagaagattc aaattgggga gtatatttcg acaagaaagg agtactaaca     300
   34 gccggaacaa tcaccctcaa agccggcgac aacctgaaaa tcaaacaaaa caccaatgaa     360
   35 aacaccaatg ccagtagctt cacctactcg ctgaaaaaag acctcacaga tctgaccagt     420
   36 gttggaactg aaaaattatc gtttagcgca aacagcaata aagtcaacat cacaagcgac     480
   37 accaaaggct tgaatttcgc gaaaaaaacg gctgagacca acggcgacac cacggttcat     540
   38 ctgaacggta tcggttcgac tttgaccgat acgctgctga ataccggagc gaccacaaac     600
   39 gtaaccaacg acaacgttac cgatgacgag aaaaaacgtg cggcaagcgt taaagacgta     660
   40 ttaaacgcag gctggaacat taaaggcgtt aaacccggta caacagcttc cgataacgtt     720
   41 gatttcgtcc gcacttacga cacagtcgat ttcttgagcg cagatacgaa aacaacgact     780
   42 gttaatgtgg aaagcaaaga caacggcaag agaaccgaag ttaaaatcgg tgcgaagact     840
   43 tctgttatca aagaaaaagg cggtaagttg gttactgtca aagacaaaag cggtgaatgat     900
   44 tcttctacag acaaaggcga aggcttagtg actgcaaaag aagtgattga tgcagtaaac     960
   45 aaggctggtt ggagaatgaa aacaacaacc gctaatggtc aaacaggtca agctgacaag    1020
   46 tttgaaaccg ttacatcagg cacaaatgta accttgcta gtggtaaagg tacaactgcg    1080
   47 actgtaagta aagatgatca aggcaacatc actgttatgt atgatgtaaa tgtcggcgat    1140
   48 gccctaaacg tcaatcagct gcaaaacagc ggttggaatt tggattccaa agcggttgca    1200
   49 ggttcttcgg gcaaagtcat cagcggcaat gtttcgccga gcaagggaaa gatggatgaa    1260
   50 accgtcaaca ttaatgccgg caacaacatc gagattaccc gcaacggcaa aaatatcgac    1320
   51 atcgccactt cgatgacccc gcaatttttcc agcgtttcgc tcggcgcggg ggcggatgcg    1380
   52 cccacttaa gcgtggatga cgaggcgcg ttgaatgtcg gcagcaagga tgccaacaaa    1440
   53 cccgtccgca ttaccaatgt cgccccgggc gttaaagagg gggatgttac aaacgtcgca    1500
   54 caacttaaag gcgtggcgca aaacttgaac aaccacatcg acaatgtgga cggcaacgcg    1560
   55 cgtgcgggca tcgcccaagc gattgcaacc gcaggtctgg ttcaggcgta tctgcccggc    1620
   56 aagagtatga tggcgatcgg cggcggcact tatcgcggcg aagccggtta tgccatcggc    1680
   57 tactcaagca tttccgacgg cggaaattgg attatcaaag gcacggcttc cggcaattcg    1740
```

```
58 cgcggccatt tcggtgcttc cgcatctgtc ggttatcagt ggtaa                              1785
60 <210> SEQ ID NO: 2
61 <211> LENGTH: 594
62 <212> TYPE: PRT
63 <213> ORGANISM: Bacteria
65 <400> SEQUENCE: 2
66 Met Asn Lys Ile Tyr Arg Ile Ile Trp Asn Ser Ala Leu Asn Ala Trp
67  1               5                  10                  15
68 Val Ala Val Ser Glu Leu Thr Arg Asn His Thr Lys Arg Ala Ser Ala
69              20                  25                  30
70 Thr Val Ala Thr Ala Val Leu Ala Thr Leu Leu Phe Ala Thr Val Gln
71          35                  40                  45
72 Ala Ser Thr Thr Asp Asp Asp Leu Tyr Leu Glu Pro Val Gln Arg
73      50                  55                  60
74 Thr Ala Val Val Leu Ser Phe Arg Ser Asp Lys Glu Gly Thr Gly Glu
75 65                  70                  75                  80
76 Lys Glu Val Thr Glu Asp Ser Asn Trp Gly Val Tyr Phe Asp Lys Lys
77              85                  90                  95
78 Gly Val Leu Thr Ala Gly Thr Ile Thr Leu Lys Ala Gly Asp Asn Leu
79              100                 105                 110
80 Lys Ile Lys Gln Asn Thr Asn Glu Asn Thr Asn Ala Ser Ser Phe Thr
81          115                 120                 125
82 Tyr Ser Leu Lys Lys Asp Leu Thr Asp Leu Thr Ser Val Gly Thr Glu
83      130                 135                 140
84 Lys Leu Ser Phe Ser Ala Asn Ser Asn Lys Val Asn Ile Thr Ser Asp
85 145                 150                 155                 160
86 Thr Lys Gly Leu Asn Phe Ala Lys Lys Thr Ala Glu Thr Asn Gly Asp
87              165                 170                 175
88 Thr Thr Val His Leu Asn Gly Ile Gly Ser Thr Leu Thr Asp Thr Leu
89              180                 185                 190
90 Leu Asn Thr Gly Ala Thr Thr Asn Val Thr Asn Asp Asn Val Thr Asp
91          195                 200                 205
92 Asp Glu Lys Lys Arg Ala Ala Ser Val Lys Asp Val Leu Asn Ala Gly
93      210                 215                 220
94 Trp Asn Ile Lys Gly Val Lys Pro Gly Thr Thr Ala Ser Asp Asn Val
95 225                 230                 235                 240
96 Asp Phe Val Arg Thr Tyr Asp Thr Val Glu Phe Leu Ser Ala Asp Thr
97              245                 250                 255
98 Lys Thr Thr Thr Val Asn Val Glu Ser Lys Asp Asn Gly Lys Arg Thr
99              260                 265                 270
100 Glu Val Lys Ile Gly Ala Lys Thr Ser Val Ile Lys Glu Lys Asp Gly
101          275                 280                 285
102 Lys Leu Val Thr Gly Lys Asp Lys Gly Glu Asn Asp Ser Ser Thr Asp
103      290                 295                 300
104 Lys Gly Glu Gly Leu Val Thr Ala Lys Glu Val Ile Asp Ala Val Asn
105 305                 310                 315                 320
106 Lys Ala Gly Trp Arg Met Lys Thr Thr Thr Ala Asn Gly Gln Thr Gly
107              325                 330                 335
108 Gln Ala Asp Lys Phe Glu Thr Val Thr Ser Gly Thr Asn Val Thr Phe
```

RAW SEQUENCE LISTING   DATE: 12/26/2000
PATENT APPLICATION: US/09/700,293   TIME: 13:14:21

Input Set : A:\seqlist.txt
Output Set: N:\CRF3\12262000\I700293.raw

```
109              340              345              350
110 Ala Ser Gly Lys Gly Thr Thr Ala Thr Val Ser Lys Asp Asp Gln Gly
111          355              360              365
112 Asn Ile Thr Val Met Tyr Asp Val Asn Val Gly Asp Ala Leu Asn Val
113      370              375              380
114 Asn Gln Leu Gln Asn Ser Gly Trp Asn Leu Asp Ser Lys Ala Val Ala
115 385              390              395              400
116 Gly Ser Ser Gly Lys Val Ile Ser Gly Asn Val Ser Pro Ser Lys Gly
117              405              410              415
118 Lys Met Asp Glu Thr Val Asn Ile Asn Ala Gly Asn Asn Ile Glu Ile
119          420              425              430
120 Thr Arg Asn Gly Lys Asn Ile Asp Ile Ala Thr Ser Met Thr Pro Gln
121          435              440              445
122 Phe Ser Ser Val Ser Leu Gly Ala Gly Ala Asp Ala Pro Thr Leu Ser
123      450              455              460
124 Val Asp Asp Glu Gly Ala Leu Asn Val Gly Ser Lys Asp Ala Asn Lys
125 465              470              475              480
126 Pro Val Arg Ile Thr Asn Val Ala Pro Gly Val Lys Glu Gly Asp Val
127              485              490              495
128 Thr Asn Val Ala Gln Leu Lys Gly Val Ala Gln Asn Leu Asn Asn His
129          500              505              510
130 Ile Asp Asn Val Asp Gly Asn Ala Arg Ala Gly Ile Ala Gln Ala Ile
131      515              520              525
132 Ala Thr Ala Gly Leu Val Gln Ala Tyr Leu Pro Gly Lys Ser Met Met
133      530              535              540
134 Ala Ile Gly Gly Gly Thr Tyr Arg Gly Glu Ala Gly Tyr Ala Ile Gly
135 545              550              555              560
136 Tyr Ser Ser Ile Ser Asp Gly Gly Asn Trp Ile Ile Lys Gly Thr Ala
137              565              570              575
138 Ser Gly Asn Ser Arg Gly His Phe Gly Ala Ser Ala Ser Val Gly Tyr
139          580              585              590
140 Gln Trp
143 <210> SEQ ID NO: 3
144 <211> LENGTH: 1776
145 <212> TYPE: DNA
146 <213> ORGANISM: Bacteria
148 <400> SEQUENCE: 3
149 atgaacaaaa tataccgcat catttggaat agtgccctca atgcctgggt cgccgtatcc      60
150 gagctcacac gcaaccacac caaacgcgcc tccgcaaccg tgaagaccgc cgtattggcg     120
151 acactgttgt ttgcaacggt tcaggcaagt gctaacaatg aagagcaaga agaagattta     180
152 tatttagacc ccgtacaacg cactgttgcc gtgttgatag tcaattccga taaagaaggc     240
153 acgggagaaa aagaaaaagt agaagaaaat tcagattggg cagtatattt caacgagaaa     300
154 ggagtactaa cagccagaga aatcaccctc aaagccggcg acaacctgaa aatcaaacaa     360
155 aacgcacaa acttcaccta ctcgctgaaa aaagacctca cagatctgac cagtgttgga     420
156 actgaaaaat tatcgtttag cgcaaacggc aataaagtca acatcacaag cgacaccaaa     480
157 ggcttgaatt ttgcgaaaga aacggctggg acgaacggcg acaccacggt tcacctgaac     540
158 ggtattggtt cgactttgac cgatacgctg ctgaataccg gagcgaccac aaacgtaacc     600
159 aacgacaacg ttaccgatga cgagaaaaaa cgtgcggcaa gcgttaaaga cgtattaaac     660
160 gcaggctgga acattaaagg cgttaaaccc ggtacaacag cttccgataa cgttgatttc     720
```

```
161 gtccgcactt acgacacagt cgagttcttg agcgcagatg cgaaaacaac gactgttaat   780
162 gtggaaagca aagacaacgg caagaaaacc gaagttaaaa tcggtgcgaa gacttctgtt   840
163 attaaagaaa aagacggtaa gttggttact ggtaaagaca aaggcgagaa tggttcttct   900
164 acagacgaag gcgaaggctt agtgactgca aaagaagtga ttgatgcagt aaacaaggct   960
165 ggttggagaa tgaaaacaac aaccgctaat ggtcaaacag gtcaagctga caagtttgaa  1020
166 accgttacat caggcacaaa tgtaaccttt gctagtggta aaggtacaac tgcgactgta  1080
167 agtaaagatg atcaaggcaa catcactgtt atgtatgatg taaatgtcgg cgatgcccta  1140
168 aacgtcaatc agctgcaaaa cagcggttgg aatttggatt ccaaagcggt tgcaggttct  1200
169 tcggcaaag tcatcagcgg caatgtttcg ccgagcaagg gaaagatgga tgaaaccgtc  1260
170 aacattaatg ccggcaacaa catcgagatt accgcaacg gtaaaaatat cgacatcgcc  1320
171 acttcgatga ccccgcagtt ttccagcgtt tcgctcggcg cggggcggga tgcgcccact  1380
172 ttgagcgtgg atggggacgc attgaatgtc ggcagcaaga aggacaacaa accgtccgc  1440
173 attaccaatg tcgccccggg cgttaaagag gggatgtta caaacgtcgc acaacttaaa  1500
174 ggcgtggcgc aaaacttgaa caaccgcatc gacaatgtgg acggcaacgc gcgtgcggc  1560
175 atcgcccaag cgattgcaac cgcaggtctg gttcaggcgt atttgcccgt caagagtaty  1620
176 atgccgatcg gcggcggcac ttatcgcggc gaagccggtt acgccatcgg ctactccagt  1680
177 atttccgacg gcgaaattg gattatcaaa ggcacggctt ccggcaattc gcgcgccat  1740
178 ttcggtgctt ccgcatctgt cggttatcag tggtaa                           1776
180 <210> SEQ ID NO: 4
181 <211> LENGTH: 591
182 <212> TYPE: PRT
183 <213> ORGANISM: Bacteria
185 <400> SEQUENCE: 4
186 Met Asn Lys Ile Tyr Arg Ile Ile Trp Asn Ser Ala Leu Asn Ala Trp
187   1               5                  10                  15
188 Val Ala Val Ser Glu Leu Thr Arg Asn His Thr Lys Arg Ala Ser Ala
189              20                  25                  30
190 Thr Val Lys Thr Ala Val Leu Ala Thr Leu Leu Phe Ala Thr Val Gln
191          35                  40                  45
192 Ala Ser Ala Asn Asn Glu Glu Gln Glu Gln Asp Leu Tyr Leu Asp Pro
193          50                  55                  60
194 Val Gln Arg Thr Val Ala Val Leu Ile Val Asn Ser Asp Lys Glu Gly
195 65                  70                  75                  80
196 Thr Gly Glu Lys Glu Lys Val Glu Glu Asn Ser Asp Trp Ala Val Tyr
197              85                  90                  95
198 Phe Asn Glu Lys Gly Val Leu Thr Ala Arg Glu Ile Thr Leu Lys Ala
199             100                 105                 110
200 Gly Asp Asn Leu Lys Ile Lys Gln Asn Gly Thr Asn Phe Thr Tyr Ser
201             115                 120                 125
202 Leu Lys Lys Asp Leu Thr Asp Leu Thr Ser Val Gly Thr Glu Lys Leu
203             130                 135                 140
204 Ser Phe Ser Ala Asn Gly Asn Lys Val Asn Ile Thr Ser Asp Thr Lys
205 145                 150                 155                 160
206 Gly Leu Asn Phe Ala Lys Glu Thr Ala Gly Thr Asn Gly Asp Thr Thr
207             165                 170                 175
208 Val His Leu Asn Gly Ile Gly Ser Thr Leu Thr Asp Thr Leu Leu Asn
209             180                 185                 190
210 Thr Gly Ala Thr Thr Asn Val Thr Asn Asp Asn Val Thr Asp Asp Glu
211             195                 200                 205
```

```
212 Lys Lys Arg Ala Ala Ser Val Lys Asp Val Leu Asn Ala Gly Trp Asn
213         210             215                 220
214 Ile Lys Gly Val Lys Pro Gly Thr Thr Ala Ser Asp Asn Val Asp Phe
215 225             230                 235                 240
216 Val Arg Thr Tyr Asp Thr Val Glu Phe Leu Ser Ala Asp Thr Lys Thr
217             245                 250                 255
218 Thr Thr Val Asn Val Glu Ser Lys Asp Asn Gly Lys Lys Thr Glu Val
219         260                 265                 270
220 Lys Ile Gly Ala Lys Thr Ser Val Ile Lys Glu Lys Asp Gly Lys Leu
221         275             280                 285
222 Val Thr Gly Lys Asp Lys Gly Glu Asn Gly Ser Ser Thr Asp Glu Gly
223         290             295                 300
224 Glu Gly Leu Val Thr Ala Lys Glu Val Ile Asp Ala Val Asn Lys Ala
225 305             310                 315                 320
226 Gly Trp Arg Met Lys Thr Thr Thr Ala Asn Gly Gln Thr Gly Gln Ala
227             325                 330                 335
228 Asp Lys Phe Glu Thr Val Thr Ser Gly Thr Asn Val Thr Phe Ala Ser
229             340                 345                 350
230 Gly Lys Gly Thr Thr Ala Thr Val Ser Lys Asp Asp Gln Gly Asn Ile
231         355             360                 365
232 Thr Val Met Tyr Asp Val Asn Val Gly Asp Ala Leu Asn Val Asn Gln
233         370             375                 380
234 Leu Gln Asn Ser Gly Trp Asn Leu Asp Ser Lys Ala Val Ala Gly Ser
235 385             390                 395                 400
236 Ser Gly Lys Val Ile Ser Gly Asn Val Ser Pro Ser Lys Gly Lys Met
237             405                 410                 415
238 Asp Glu Thr Val Asn Ile Asn Ala Gly Asn Asn Ile Glu Ile Thr Arg
239             420                 425                 430
240 Asn Gly Lys Asn Ile Asp Ile Ala Thr Ser Met Thr Pro Gln Phe Ser
241         435             440                 445
242 Ser Val Ser Leu Gly Ala Gly Ala Asp Ala Pro Thr Leu Ser Val Asp
243         450             455                 460
244 Gly Asp Ala Leu Asn Val Gly Ser Lys Lys Asp Asn Lys Pro Val Arg
245 465             470                 475                 480
246 Ile Thr Asn Val Ala Pro Gly Val Lys Glu Gly Asp Val Thr Asn Val
247             485                 490                 495
248 Ala Gln Leu Lys Gly Val Ala Gln Asn Leu Asn Asn Arg Ile Asp Asn
249             500                 505                 510
250 Val Asp Gly Asn Ala Arg Ala Gly Ile Ala Gln Ala Ile Ala Thr Ala
251         515             520                 525
252 Gly Leu Val Gln Ala Tyr Leu Pro Gly Lys Ser Met Met Ala Ile Gly
253         530             535                 540
254 Gly Gly Thr Tyr Arg Gly Glu Ala Gly Tyr Ala Ile Gly Tyr Ser Ser
255 545             550                 555                 560
256 Ile Ser Asp Gly Gly Asn Trp Ile Ile Lys Gly Thr Ala Ser Gly Asn
257             565                 570                 575
258 Ser Arg Gly His Phe Gly Ala Ser Ala Ser Val Gly Tyr Gln Trp
259             580                 585                 590
261 <210> SEQ ID NO: 5
```

```
          VERIFICATION SUMMARY            DATE: 12/26/2000
          PATENT APPLICATION:  US/09/700,293      TIME: 13:14:22

          Input Set : A:\seqlist.txt
          Output Set: N:\CRF3\12262000\1700293.raw

L:13 M:270 C: Current Application Number differs, Replaced Current Application No
L:13 M:271 C: Current Filing Date differs, Replaced Current Filing Date
```